



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,755	09/09/2003	Donald R. Mapes	14920.0015	1157
27890	7590	03/20/2007	EXAMINER	
STEPTOE & JOHNSON LLP 1330 CONNECTICUT AVENUE, N.W. WASHINGTON, DC 20036			BARTON, JEFFREY THOMAS	
		ART UNIT	PAPER NUMBER	
		1753		
SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE		
3 MONTHS	03/20/2007	PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/657,755	MAPES ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Jeffrey T. Barton	1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 28 August 2006.

2a)  This action is **FINAL**.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 1-43 is/are pending in the application.  
4a) Of the above claim(s) 28-43 is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1-13,15,17,18,21,22 and 24-27 is/are rejected.

7)  Claim(s) 14,16,19,20 and 23 is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO/SB/08)  
    Paper No(s)/Mail Date 20031120, 20040806.  
4)  Interview Summary (PTO-413)  
    Paper No(s)/Mail Date. \_\_\_\_.  
5)  Notice of Informal Patent Application  
6)  Other: \_\_\_\_.

**DETAILED ACTION**

***Election/Restrictions***

1. This application contains claims directed to the following patentably distinct species:

A: Array having rails comprising a pair of grooves opening in opposite directions, which receives edges of photovoltaic modules. (Claims 1-27; Figures 1-6 and 8-11)

B: Arrays and methods involving panels having attachment members along their edges that are coupled to support segments. (Claims 28-43; Figures 12-21)

The species are independent or distinct because they are illustrated and disclosed as using different and mutually exclusive means of securing solar panels, with different structure (e.g. rails, caps, grooves vs. attachment members, support segments) that would require different searches.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no claims are generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species.

MPEP § 809.02(a).

2. During a telephone conversation with Harold Fox on 12 March 2007 a provisional election was made with traverse to prosecute the invention of Species A, claims 1-27. Affirmation of this election must be made by applicant in replying to this Office action. Claims 28-43 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 12 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 recites the limitations "the lower flange" in lines 1-2, "the T-shaped upper extremity" in line 3, and "the upper cross bar" in lines 3-4. There is insufficient antecedent basis for these limitations in the claim.

Claim 13 recites the limitation "the stem" in line 1. There is insufficient antecedent basis for this limitation in the claim.

#### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1, 2, 10, 11, 15, 17, 18, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danielewicz. (U.S. Pat. No. 5,678,383)

Regarding claim 1, Danielewicz teaches a photovoltaic array (System for joining panels, panels can be solar panels; Column 8, lines 28-30) comprising elongated rails (Figures 1 and 5) that are mounted on a support surface (300; Column 8, lines 1-6) projecting upwardly therefrom; each rail having an extruded resin construction (Column 3, lines 47-49) including a lower base (10) and upper cap (30) that cooperate to define a pair of grooves opening in opposite directions from each other (Figures 1 and 5); and rectangular photovoltaic panels (Figure 5; panel 200 can be a solar panel; Column 8, lines 28-30) having edges received by the grooves of the rails so as to be mounted above the support surface in a spaced relationship. (Figure 5)

Regarding claim 2, Danielewicz teaches that the lower base and upper cap are extruded as separate pieces and secured to each other as claimed. (Figures 1 and 5; Column 3, lines 47-49)

Regarding claim 10, Danielewicz teaches that the lower base and upper cap are extruded as separate pieces and secured to each other as claimed (Figures 1 and 5; Column 3, lines 47-49), with the lower base including a lower flange for mounting on the surface (Figure 5; Column 8, lines 1-6), a stem that projects upwardly from the lower flange (Support walls 112, 113 on either side define a stem; Column 3, line 60 - Column 4, line 5) and an upper extremity of a T-shape (Defined by stem and walls 114, 121 and fins 17) that defines an upwardly opening slot as claimed (Between 112 and 113), and the upper cap having a T-shape (Figure 1) with a stem that projects downwardly (Defined by segments 31 and 34) and is received by the slot in the base, and the upper cap having an upper cross bar (117) as claimed.

Regarding claim 11, the base of Danielewicz includes upwardly projecting stops as claimed. (15; Column 4, lines 48-52)

Regarding claim 15, Danielewicz teaches such fasteners. (Ridges along 112, 113, 31, and 34)

Regarding claim 17, the lower extremities of members 31 and 34 read on the claimed elongated extruded formation, as they facilitate centering alignment.

Regarding claim 18, fins 17 of flexible material read on the claimed pads. (Figure 1; Column 4, lines 54-61)

Regarding claim 21, Danielewicz teach such connection formations. (Ridges along 112, 113, 31, and 34)

Danielewicz does not specifically teach the use of plural of these rails placed parallel to each other so as to mount an array of the solar panels. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have placed plural of Danielewicz's rails parallel to each other so that an array of panels could be mounted. Selection of the number of panels to be mounted in a plane would have been an obvious choice to a skilled artisan based on the number of panels desired, power requirements, and the size of the structure to be enclosed by the panels.

10. Claims 1, 2, and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okubo (JP 11-311002 and Computer translation) in view of Danielewicz.

Regarding claim 1, Okubo teaches a photovoltaic array (Figure 6) comprising a plurality of elongated rails (11, 15) for being mounted on a support surface (English abstract, 1<sup>st</sup> two sentences) projecting upwardly therefrom and extending in a spaced and parallel relationship (Figure 6); each rail including a lower base (Figure 3; base 11/12) and upper cap (15) that define grooves as claimed (Figure 3); and rectangular photovoltaic modules (20) having edges received in the grooves. (Figures 3 and 6)

Regarding claim 2, Okubo teaches that the lower base (11/12) and upper cap (15) are separate pieces secured to each other to define the claimed grooves. (English abstract)

Regarding claims 25-27, Okubo teaches that the support surface is a roof (English abstract) having a membrane (Sheet/tarpaulin 31; Figure 6; Paragraph 0012) onto which the rails are mounted. The nails/screws 16 read on the claimed connections, and the elongated central portion of members 11, through which the nails/screws 16 pass reads on the connector strips.

Okubo does not explicitly teach that the rail bases (11/12) and caps (15) are made of resin, or extruded.

Danielewicz teaches a similar rail/cap panel securement device which is advantageously fashioned by extruding polyvinyl chloride. The purpose and function of the rails of Danielewicz and Okubo are the same.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the rail bases and caps of Okubo by forming them of polyvinyl chloride resin, as taught by Danielewicz, because Danielewicz exemplifies that polyvinyl chloride resin was known in the art to be suitable for rails/caps that secure structural panels on building exteriors. Its durability and strength were known in the art, and these properties would have made it desirable for the rail bases and caps of Okubo. The selection of a known material based on its suitability for its intended use supported a *prima facie* obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

Undue weight cannot be given to the limitation to "extruded" construction, since this limitation is directed to forming a product by a given process, and the structure defined by the combination above provides a structure that is the same as one that would result from extrusion. However, Danielewicz teaches formation of the rail bases and caps by extrusion, and it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the rail bases and caps of Okubo by forming them through extrusion of the polyvinyl chloride, because extrusion is known in the art to be an inexpensive, reliable means of molding resins into elongated shapes of unchanging cross-section, such as the rail bases and caps of Okubo.

11. Claims 1, 2, 5-9, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori (U.S. Pat. No. 5,409,549) in view of Danielewicz.

Regarding claim 1, Mori teaches a photovoltaic array (Figures 1-3) comprising a plurality of elongated rails (6, 7, 8) for being mounted on a support surface (10) projecting upwardly therefrom and extending in a spaced and parallel relationship (Figure 1); each rail including a lower base (7, 8) and upper cap (6) that define grooves as claimed (Figure 3); and rectangular photovoltaic modules (Layers 1-3) having edges received in the grooves. There is space shown between the panel bottom layers 2 and support surface 10. (Figure 3)

Regarding claim 2, Mori shows that caps 6 and base pieces 8 and 9 are separate pieces secured to each other (Figure 3)

Regarding claims 5-9, Mori teaches cross members supporting electrical wiring as claimed. (Figures 1 and 2, cross member 11/13/3, cable 5) In the absence of evidence of the significance of the shape of such a cross member, selection of a different shape for a member that is otherwise the same as that disclosed in the prior art does not provide patentability. For instance, in *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966), the court held that the configuration of the claimed object was a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed container was significant.

Regarding claim 12, Mori teaches that the bottom flange of frame 8 is wider than a T-shaped upper extremity of the lower base and a width of the cap. (Figure 3)

Danielewicz teaches a similar rail/cap panel securement device which is advantageously fashioned by extruding polyvinyl chloride. The purpose and function of the rails of Danielewicz and Mori are the same.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the rail bases and caps of Mori by forming them of polyvinyl chloride resin, as taught by Danielewicz, because Danielewicz exemplifies that polyvinyl chloride resin was known in the art to be suitable for rails/caps that secure structural panels on building exteriors. Its durability and strength were known in the art, and these properties would have made it desirable for the rail bases and caps of Mori. The selection of a known material based on its suitability for its intended use supported

a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

Undue weight cannot be given to the limitation to "extruded" construction, since this limitation is directed to forming a product by a given process, and the structure defined by the combination above provides a structure that is the same as one that would result from extrusion. However, Danielewicz teaches formation of the rail bases and caps by extrusion, and it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the rail bases and caps of Mori by forming them through extrusion of the polyvinyl chloride, because extrusion is known in the art to be an inexpensive, reliable means of molding resins into elongated shapes of unchanging cross-section, such as the rail bases and caps of Mori.

12. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mori and Danielewicz as applied to claim 8 above, and further in view of Padrun. (U.S. Pat. No. 6,276,108)

Mori and Danielewicz teach an array as described above in addressing claim 8.

Neither Mori nor Danielewicz teach a base stem (e.g. vertical portions of bracket 7) having scallops for reducing the amount of resin used in construction.

Padrun teaches a structural support in which edges of a support member are scalloped in order to reduce the amount of material needed in construction. (Figure 4; Column 2, lines 62-65) Padrun is analogous art in that it is within the field of structural

supports in construction arts. Both Mori and Padrun have classification in class 52, for static structures.

It would have been obvious to one having ordinary skill in the art to further modify the array of Mori by scalloping edges of a base stem (e.g. vertical portions of bracket 7) in order to reduce the amount of material needed, as taught by Padrun, because such scalloping would have reduced the cost of the rails of Mori through reduced consumption of raw materials.

13. Claims 22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danielewicz in view of Mori.

Danielewicz disclose an array as described above in addressing claim 10.

Danielewicz is silent concerning cross members extending between rails, but teaches that the panels can be solar panels, which will inherently have associated wiring for interconnection and power delivery.

Mori teaches a structure (Figures 1-3) comprising solar panels supported by parallel rails, further including cross members (11/13/3) as claimed, positioned at openings between adjacent panels. Mori teaches the advantage of these structures in protecting the solar panel wiring and cell elements from water. (Column 5, lines 26-68)

It would have been obvious to one having ordinary skill in the art to modify the array of Danielewicz by providing cross members to protect the wiring and cells of the modules, as taught by Mori, because it would protect the moisture-sensitive

components of the solar array from atmospheric moisture, extending the useful life of the panels.

### ***Double Patenting***

14. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

15. Claims 3 and 4 are rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 3 and 4 of prior U.S. Patent No. 6,617,507. This is a double patenting rejection.

16. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory

double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

17. Claims 1-27 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-24 of U.S. Patent No. 6,617,507.

Although the conflicting claims are not identical, they are not patentably distinct from each other because the only significant difference between the respective claims is the recitation of abutting modules in claim 1 of US 6,617,507, which also claimed in instant claim 3, and therefore also contemplated in the instant claims.

***Allowable Subject Matter***

18. Claims 14, 16, 19, 20, and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

19. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record neither teaches nor fairly suggests the downwardly extending flanges provided at a T-shaped upper extremity of the lower base having the structure required in instant claim 14. (See instant Figure 11) No analogous structure is taught by the prior art of record.

***Conclusion***

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Jeffrey T. Barton whose telephone number is (571) 272-1307. The examiner can normally be reached on M-F 9:00AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JTB  
15 March 2007

  
NAM NGUYEN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700